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| *The nature-nurture issue is found in perceptual development, just as it is in other dimensions of development. In the area of perception, the issue can be traced to the philosophers of the 17th and 18th centuries. Rene Descartes and Immanuel Kant took the nativist view that children are born with predispositions to perceive the world in certain ways. Kant, for example, believed that our innate makeup causes us to sense and organize the objects of the world according to certain "categories." We perceive some things and are oblivious to others because of our inborn ways of organizing the world outside.*  *George Berkeley and John Locke took the empiricist view that experience determines our ways of perceiving the world. Locke, for example, argued that mental representations reflect the impact of the world on the sense organs. There is no particular inborn way of organizing sensations of the world. The world, instead, impresses the mind with its own stamp.*  *Today, few developmentalists subscribe to either extreme. Most would agree that nature (the nativist view) and nurture (the empiricist view) interact to give shape to perceptual development.*  *Turnbull’s classic observations of the BaMbuti Pygmies—particularly of a young man named Kenge—have implications for these views of perceptual development. Although they are recorded in a psychology journal, they also read like the writings of the anthropologist who studies various cultures. As you read the article, you will find many facts of interest to students of psychology, such as those concerning size constancy ("distance and size perception") and those involving names of colors.* |

**Some Observations Regarding the Experiences and Behavior of the BaMbuti Pygmies**

**By COLIN M. TURNBULL**

The identity of the BaMbuti Pygmies of the Ituri Forest in the Congo with the forest itself goes beyond their social life; they are also psychologically conditioned by their environment. This can best be illustrated by some observations that I made during a recent field trip in their country.

**Distance- and Size-Perception**

At the end of a particularly long and tiring period of trekking through the forest from one hunting group to another, I found myself on the eastern edge, on a high hill which had been cleared of trees by a missionary station. There was a distant view over the last few miles of forest to the Ruwenzori Mountains: in the middle of the Ituri Forest such views are seldom if ever encountered. With me was a Pygmy youth, named Kenge, who always accompanied me and served, amongst other capacities, as a valid introduction to BaMbuti groups where I was not known. Kenge was then about 22 yr. old, and had never before seen a view such as this. He asked me what the "things" before us were (referring to the mountains). "Were they hills? Were they clouds? Just what were they?" I said that they were hills bigger than any in his forest, and that if he liked we would leave the forest and go and see them and have a rest there. He was not too sure about this, but the BaMbuti are an incorrigibly curious people and he finally agreed. We drove by automobile in a violent thunderstorm which did not clear until we entered the Ishango National Park at the foot of the mountains and on the edge of Lake Edward. Up to that moment from the time we had left the edge of the forest, near Beni, visibility had been about 100 yd.

As we drove through the park the rain stopped and the sky cleared, and that rare moment came when the Ruwenzori Mountains were completely free of cloud and stood up in the late afternoon sky, their snow-capped peaks shining in the sun. I stopped the car and Kenge very unwillingly got out. His first remark was to reiterate, what he had been saying ever since the rain stopped and we could see around us that this was a very bad country, there were no trees. Then he looked up at the mountains and was completely unable to express any ideas–quite possibly because his language had no suitable terms, being limited to the experience of a strictly forest people. The snow fascinated him. He thought it must be some kind of rock. More important, however, was the next observation.

As we turned to get back in the car, Kenge looked over the plains and down to where a herd of about a hundred buffalo were grazing some miles away. He asked me what kind of insects they were, and I told him they were buffalo, twice as big as the forest buffalo known to him. He laughed loudly and told me not to tell such stupid stories, and asked me again what kind of insects they were. He then talked to himself, for want of more intelligent company, and tried to liken the buffalo to the various beetles and ants with which he was familiar.

He was still doing this when we got into the car and drove down to where the animals were grazing. He watched them getting larger and larger, and though he was as courageous as any Pygmy, he moved over and sat close to me and muttered that it was witchcraft. (Witchcraft, incidentally, is known to the BaMbuti only through association with the Bantu. They have no similar concept of the supernormal.) Finally when he realized that they were real buffalo he was no longer afraid, but what puzzled him still was why they had been so small, and whether they *really* had been small and had suddenly grown larger, or whether it had been some kind of trickery.

As we came over the crest of the last low hill, Lake Edward stretched out into the distance beyond, losing itself in a hazy horizon. Kenge had never seen any expanse of water wider than the Ituri River, a few hundred yards across. This was another new experience difficult for him to comprehend. He again had the same difficulty of believing that a fishing boat a couple of miles out contained several human beings. "But, it’s just a piece of wood," he protested. I reminded him of the buffalo, and he nodded unbelievingly.

Later we went all over the National Park with one of the African guides. He and Kenge conversed in KiNgwana, the *lingua franca* of the area, and Kenge was constantly looking out for animals and trying to guess at what they were. He was no longer afraid or unbelieving; he was trying to adapt himself, and succeeding, to a totally new environment and new experience.

The next day he asked to be taken back to the forest. He reverted to his original argument. "This is bad country, there are no trees."

The inability of the BaMbuti to correlate size-constancy and distance had never even struck me as a possibility. In the forest, vision is strictly limited to a matter of yards, the greatest distance one can see, when up a tree looking down onto a camp, being a hundred feet or more below. Kenge was, however, a sophisticated and well travelled Pygmy. He had been with me a long time, had travelled along roads where he could see for as much as a quarter of a mile, and had seen aircraft and knew that they contained people. Such instances, however, were rare, and on the whole his experience of visual distance was limited to the relatively slight diminution of size in seeing a person or people walking along a road a quarter of a mile away. He had seldom seen any animal from further away than a few yards, he had never seen any boat bigger than a dug-out canoe, and that no further away than a few hundred feet.